



PG&E's Energy Management Solutions for

PUMPS & PUMPING SYSTEMS

Pacific Gas and Electric Company offers pumping customers education and training, technical assistance, subsidized pump tests, and incentives to improve the energy efficiency of pumping systems. Whether you are building a new pump station, retrofitting an inefficient pump, or installing a variable speed drive, PG&E's Energy Management Solutions for pumps can be customized to meet the needs of your project.

Water pumping accounts for approximately 80% of the energy consumed by PG&E's agricultural customers, and is a significant load for municipal water districts as well.

Once retrofitted, inefficient pumps typically get improved water throughput for the energy they consume. Energy savings between 20 to 35 percent are typical as pumping customers are able to reduce the hours of operation required to pump water.

TECHNICAL ASSISTANCE AND INCENTIVES ARE AVAILABLE FOR THE FOLLOWING:

PUMP RETROFIT AND REPLACEMENT – Retrofitting or replacing pumps with Overall Pumping Efficiencies (OPE) below 50% - especially those with long operating hours - can not only save you energy and money for the life of the pump, but can also earn you cash back in incentives from PG&E to help pay for the project.

TRIMMING THE IMPELLER – Trimming the pump impeller can reduce head pressure, which in turn saves energy.

WELL REHABILITATION – Well rehabilitation can increase well capacity, and thus reduce pumping time and energy costs, by removing minerals, scale, oxides, bacteria, sand and silt particles that can clog wells, screens and aquifers.

PREMIUM EFFICIENCY MOTORS – Selecting premium efficiency motors can save approximately 2 to 5% in energy costs over standard efficiency motors.

CORRECT SIZING OF PUMPS – Pumps that are inappropriately sized result in unnecessary losses. Reducing the size of your pump to match loads, and/or eliminating unnecessary pumps, can also reduce your energy demand (kilowatts) and related PG&E demand charges.

ADJUSTABLE SPEED DRIVES (ASDs) – Adjustable speed drives, also referred to as variable speed drives (VFDs), match the speed of a pump to the load requirement. Adjusting the load in motor systems, including modulation features with pumps, is estimated to save between 20 to 50% of pump energy consumption depending on the application..

IRRIGATION SYSTEM CONVERSIONS – Sprinkler to drip conversions, as well as low pressure sprinkler nozzles for both permanent or portable systems, can save energy and earn you rebates. Refer to PG&E's Energy Efficiency Rebates for your Business "Agricultural" catalog for more information.

For more information on PG&E's ENERGY MANAGEMENT SOLUTIONS, call the Business Customer Center (800) 468-4743 or visit www.pge.com/business



Pacific Gas and Electric Company®



PG&E'S ENERGY MANAGEMENT SOLUTIONS can help you control your operation expenses through building energy efficiency and demand response capabilities into your new and existing equipment, and your long-range planning.

PG&E'S Energy Management Solutions



Benefits of Pump Efficiency Testing:

- *Identify inefficient pumps in need of attention.*
- *Pump test report provides pump output, gallons per minute (GPM), horsepower under load, operating pressures, water table levels, well yield, and more.*
- *Save energy by reducing pumping time, as possible, by knowing your GPM.*
- *Energy Cost Savings Report will estimate cost savings and PG&E incentives available through retrofitting your pump.*
- *Helps you develop a well maintenance program*
- *Can be used by pump companies for design data.*

• Pump Efficiency Tests

Pump Efficiency Tests are the best way to identify pumps that are operating inefficiently and are in need of retrofit or replacement. PG&E customers with operational pumps over 25 horsepower can take advantage of reduced-cost pump efficiency tests through the Agricultural Pumping Efficiency Program (APEP). Customers select from a list of participating pump test companies listed on the APEP website, www.pumpefficiency.org. A rebate of \$150 per pump test is paid directly to the pump test company once the test is completed. Eligible pumps include those for production agriculture, landscape or turf irrigation, and municipal potable or tertiary treated water. For more information, help selecting a participating pump test company, or to verify your eligibility, call (800) 845-6038.

• Pump Retrofit Incentives

Retrofitting or replacing pumps with Overall Pumping Efficiencies (OPE) below 50% - especially those with long operating hours - can not only save you energy and money for the life of the pump, but can also earn you cash back in incentives from PG&E to help pay for the project. Eligible pump efficiency improvement projects include

- Retrofit/replacement of the pump.
- Removal/replacement of valves and fittings with high-pressure losses, if they are within 10 feet of the pump head discharge.
- Well cleaning that reduces draw down.
- Actions that reduce air entrainment.

A pre-project and post-project pump efficiency test is required to show efficiency improvements. Refer to the program guidelines on the APEP program website for more information at www.pumpefficiency.org or call the Agricultural Pumping Efficiency Program office at (800) 845-6038.

• Irrigation Rebates

Rebates are the quickest and simplest way for you to get cash back for your eligible energy efficient purchases. PG&E offers rebates for hundreds of energy-efficient measures, including the following for pumping customers:

- Sprinkler to Drip Irrigation Conversions - \$44/acre
- Permanent or Portable Low Pressure Sprinkler Nozzles - \$1.15/nozzle

Refer to PG&E's Energy Efficiency Rebates for Your Business, Agricultural rebate catalog for more information, or call PG&E's Business Customer Center at (800) 468-4743.

• Customized Energy Efficiency/Demand Response Incentive Application.

For more customized energy efficiency projects, PG&E offers optional calculation support and incentives based on standardized incentives rates. Total incentive payments are based on calculated reductions in energy use. Customers and/or their consultants may sponsor projects under this approach. Be sure to contact PG&E early in the project design process, before you start your project, for pre-approval and so that a pre-project inspection can be scheduled. Calculated pumping projects include:

- Re-sizing your pump to the appropriate load
- Premium Efficiency Motors
- Adjustable Speed Drives

For more information, contact PG&E's Business Customer Center at (800) 468-4743.

• Pumping Efficiency Education and Training

To find upcoming seminars on pumping efficiency near you, go to www.pumpefficiency.org

Additional Resources on Energy Efficiency for Pumps and Pumping Systems

- APEP Program Website — www.pumpefficiency.org
- California Energy Commission CEC — www.energy.ca.gov/process/agriculture/index.html
- California Irrigation Management Information System (CIMIS) — www.cimis.water.ca.gov/cimis/welcome.jsp
- Farm Bill 9006 — www.rurdev.usda.gov/rbs/farmbill/what_is.html

